

PATENT COOPERATION TREATY

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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
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FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/020667

International filing date (day/month/year)
04.11.2005

Priority date (day/month/year)
05.11.2004

International Patent Classification (IPC) or both national classification and IPC
G03G15/00, G03G21/18

Applicant
CANON KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/020667

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. **Additional comments:**

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/020667

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	1-14
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

1 Reference is made to the following documents:

- D1 : PATENT ABSTRACTS OF JAPAN vol. 1995, no. 11, 26 December 1995 (1995-12-26) & JP 07 219414 A (CANON INC), 18 August 1995 (1995-08-18)
- D2 : PATENT ABSTRACTS OF JAPAN vol. 1997, no. 05, 30 May 1997 (1997-05-30) & JP 09 006210 A (FUJI XEROX CO LTD), 10 January 1997 (1997-01-10)
- D3 : PATENT ABSTRACTS OF JAPAN vol. 1998, no. 08, 30 June 1998 (1998-06-30) & JP 10 078736 A (RICOH CO LTD), 24 March 1998 (1998-03-24)

- 2 Document D1, which is considered to represent the most relevant state of the art, discloses (see figures 4 and 5; the references in parentheses applying to this document) a process cartridge (4) detachably mountable to a main assembly (19) of the image forming apparatus, said process cartridge comprising: an image bearing member (5); a developing device for developing an electrostatic image formed on said image bearing member with a developer; an image bearing member driving force input portion (22) for receiving a driving force for rotating said image bearing member from an image bearing member driving force output portion (23) from the main assembly of the image forming apparatus; wherein when the driving force is inputted from said image bearing member driving force output portion (23) to said image bearing member driving force input portion (22), a part of said process cartridge (5a) is urged toward a positioning portion (21a) for positioning of said process cartridge relative to the main assembly.
- From this, the subject-matter of independent claim 1 differs in that the process cartridge further comprises a developing device driving force input portion for receiving a driving force for driving said developing device from a developing device driving force output portion of the main assembly of the image forming apparatus.
- Furthermore, the image bearing member driving force output portion and the image bearing member driving force input portion are engaged with each other with a play in a mounting and demounting direction of said process cartridge, when the driving force is inputted from said image bearing member driving force output portion to said image

bearing member driving force input portion, and the driving force is inputted from said developing device driving force output portion to said developing device driving force input portion, a part of said process cartridge is urged toward a positioning portion for positioning of said process cartridge relative to the main assembly.

Document D2 discloses (the references in parentheses applying to this document) a process cartridge (2) detachably mountable to a main assembly (1) of the image forming apparatus, said process cartridge comprising: an image bearing member (12); an image bearing member driving force input portion (11) for receiving a driving force for rotating said image bearing member from an image bearing member driving force output portion (10) from the main assembly of the image forming apparatus; wherein when the driving force is inputted from said image bearing member driving force output portion (10) to said image bearing member driving force input portion (11), this force contains components in the X, Y and Z directions, such that the cartridge is urged toward a positioning portion (13) for positioning of said process cartridge relative to the main assembly.

From this, the subject-matter of independent claim 1 differs in that: there is explicitly mentioned a developing device for developing an electrostatic image formed on said image bearing member with a developer; a developing device driving force input portion for receiving a driving force for driving said developing device from a developing device driving force output portion of the main assembly of the image forming apparatus. Furthermore, the image bearing member driving force output portion and the image bearing member driving force input portion are engaged with each other with a play in a mounting and demounting direction of said process cartridge, when the driving force is inputted from said image bearing member driving force output portion to said image bearing member driving force input portion, and when the driving force is inputted from said developing device driving force output portion to said developing device driving force input portion, a part of said process cartridge is urged toward a positioning portion for positioning of said process cartridge relative to the main assembly.

Document D3 discloses (the references in parentheses applying to this document) a process cartridge detachably mountable to a main assembly of the image forming apparatus, said process cartridge comprising: an image bearing member (1); a developing device (7); an image bearing member driving force input portion (51) for

receiving a driving force for rotating said image bearing member from an image bearing member driving force output portion (54) from the main assembly of the image forming apparatus; a developing device driving force input portion (47) for receiving a driving force for driving said developing device from a developing device driving force output portion (55) of the main assembly of the image forming apparatus; wherein when the driving force is inputted from said image bearing member driving force output portion (54) to said image bearing member driving force input portion (51) and from said developing device driving force output portion (55) to said developing device driving force input portion (47), a part (61, 62) of said process cartridge is urged toward a positioning portion (58, 59) for positioning of said process cartridge relative to the main assembly. From this, the subject-matter of independent claim 1 differs in that: the image bearing member driving force output portion (54) and said image bearing member driving force input portion (51) are engaged with each other with a play in a mounting and demounting direction of said process cartridge, when the driving force is inputted from said image bearing member driving force output portion to said image bearing member driving force input portion.

- 2.1 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT)
The problem to be solved by the present invention may be regarded as: providing a process cartridge and an image forming apparatus, wherein a high precision positioning between the process cartridge and the main assembly of the image forming apparatus can be accomplished with a simple structure.
- 2.2 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:
None of the prior art documents at hand (see D1-D3) discloses the combination of an image bearing member driving force input portion for receiving a driving force for rotating said image bearing member from an image bearing member driving force output portion from the main assembly of the image forming apparatus, which are engaged with each other with a play in a mounting and demounting direction of said process cartridge, and a developing device driving force input portion for receiving a driving force for driving said developing device from a developing device driving force output portion of the main assembly of the image forming apparatus; wherein when the driving force is inputted from said developing device driving force output portion to said developing device driving

force input portion, a part of said process cartridge is urged toward a positioning portion for positioning of said process cartridge relative to the main assembly.

It would also not be obvious for the skilled person to arrive at the teaching of claim 1 by combining the teaching of any one of the documents D1-D3 (driving force input/output portions which position the cartridge with respect to the main assembly) with image bearing member driving force input and output portions which are engaged with each other with play. The introduction of the latter feature would rather appear to be counterproductive to the skilled person.

- 2.3 Claims 2-7 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 2.4 The arguments provided for independent claim 1 are equally valid for independent claim 8 directed at an image forming apparatus configured to work in combination with the process cartridge of claim 1.
- 2.5 Claims 9-14 are dependent on claim 8 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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